FIG.1

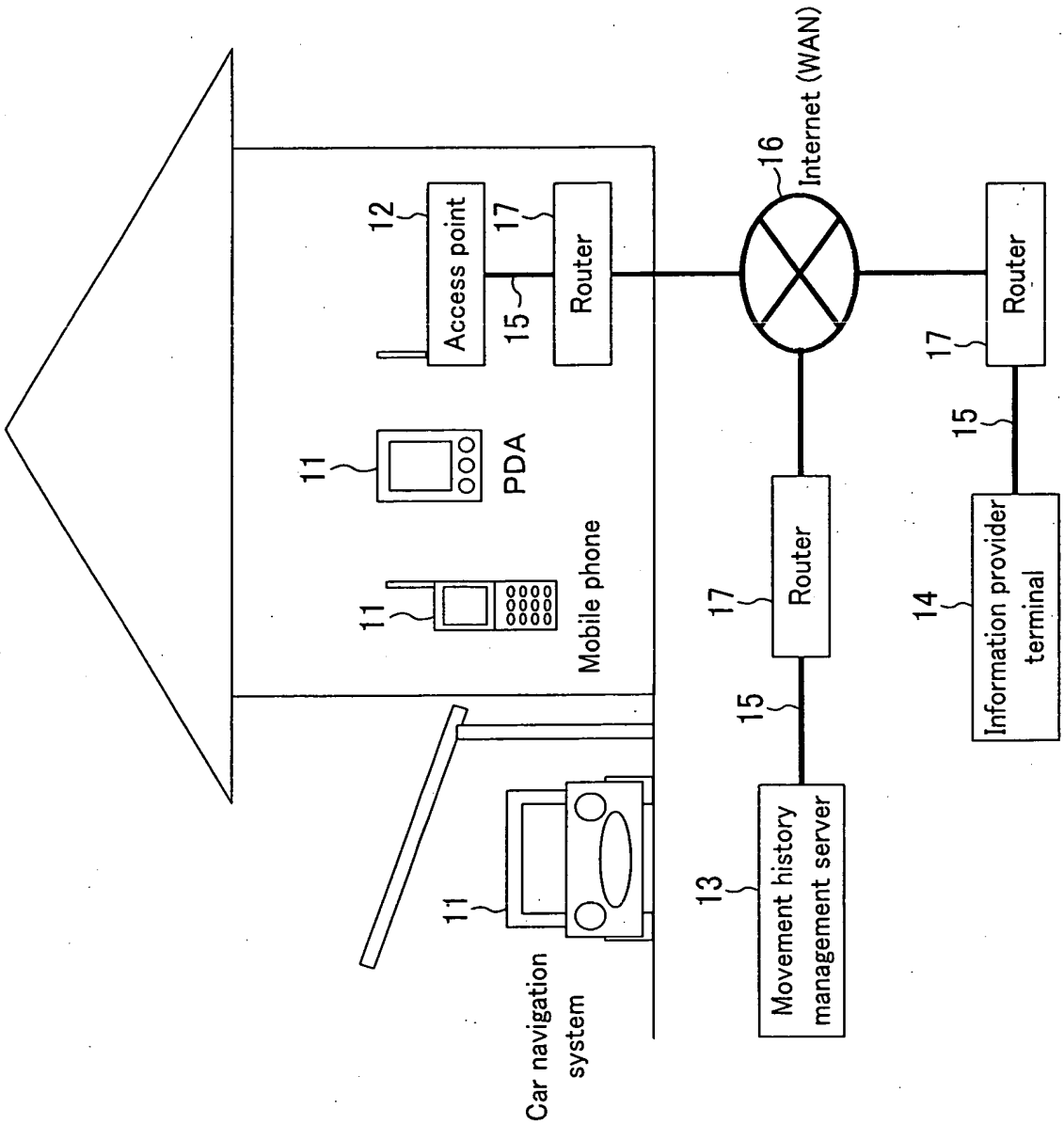

16
Internet (WAN)
12
Access point
17
Router
15
Router
17
11
PDA
15
11
Mobile phone
Router
17
15
14
Information provider terminal
11
Car navigation system
13
Movement history management server

FIG.2

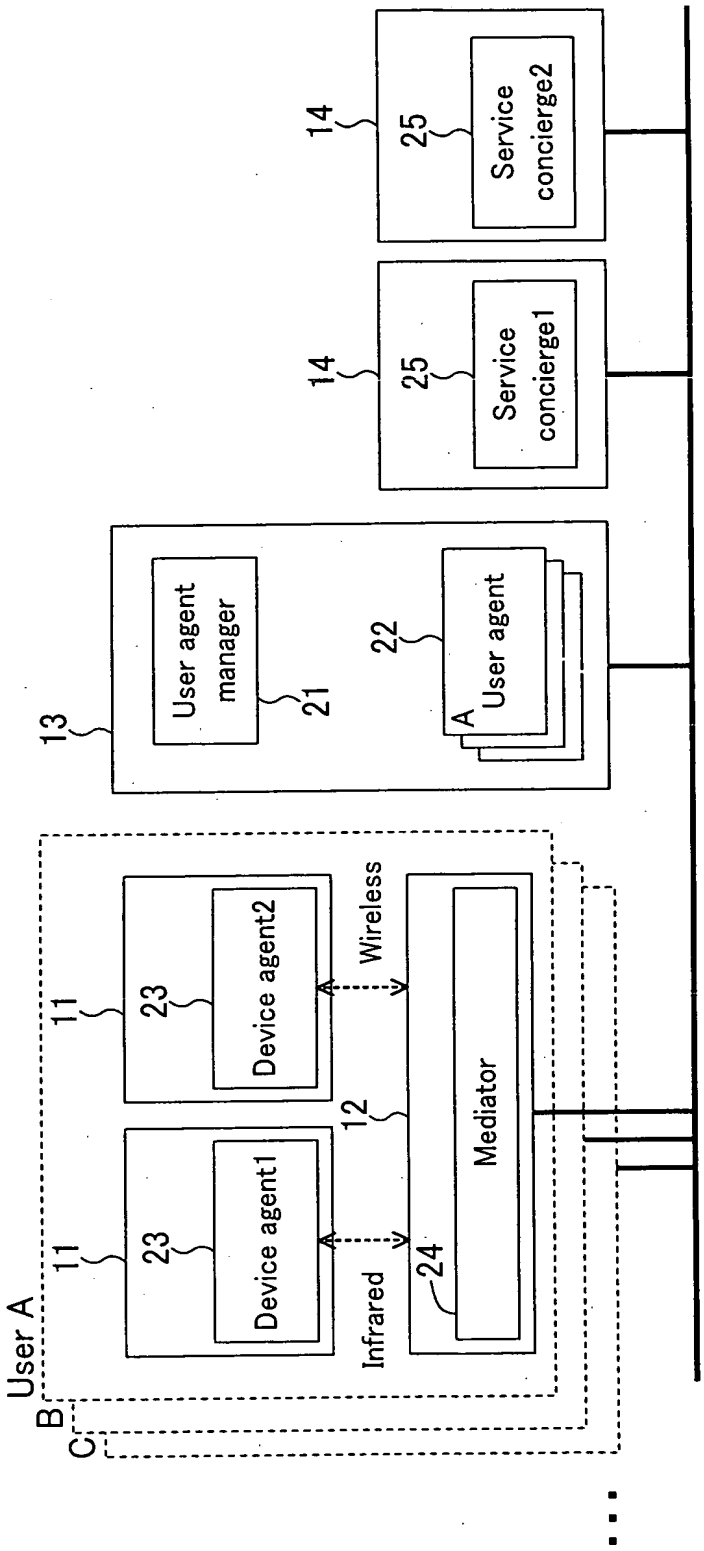

14
25
Service concierge2
14
25
Service concierge1
13
User agent manager
21
22
User agent
A
User A
B
C
11
23
Device agent2
Wireless
12
Mediator
11
23
Device agent1
Infrared
24

FIG.3

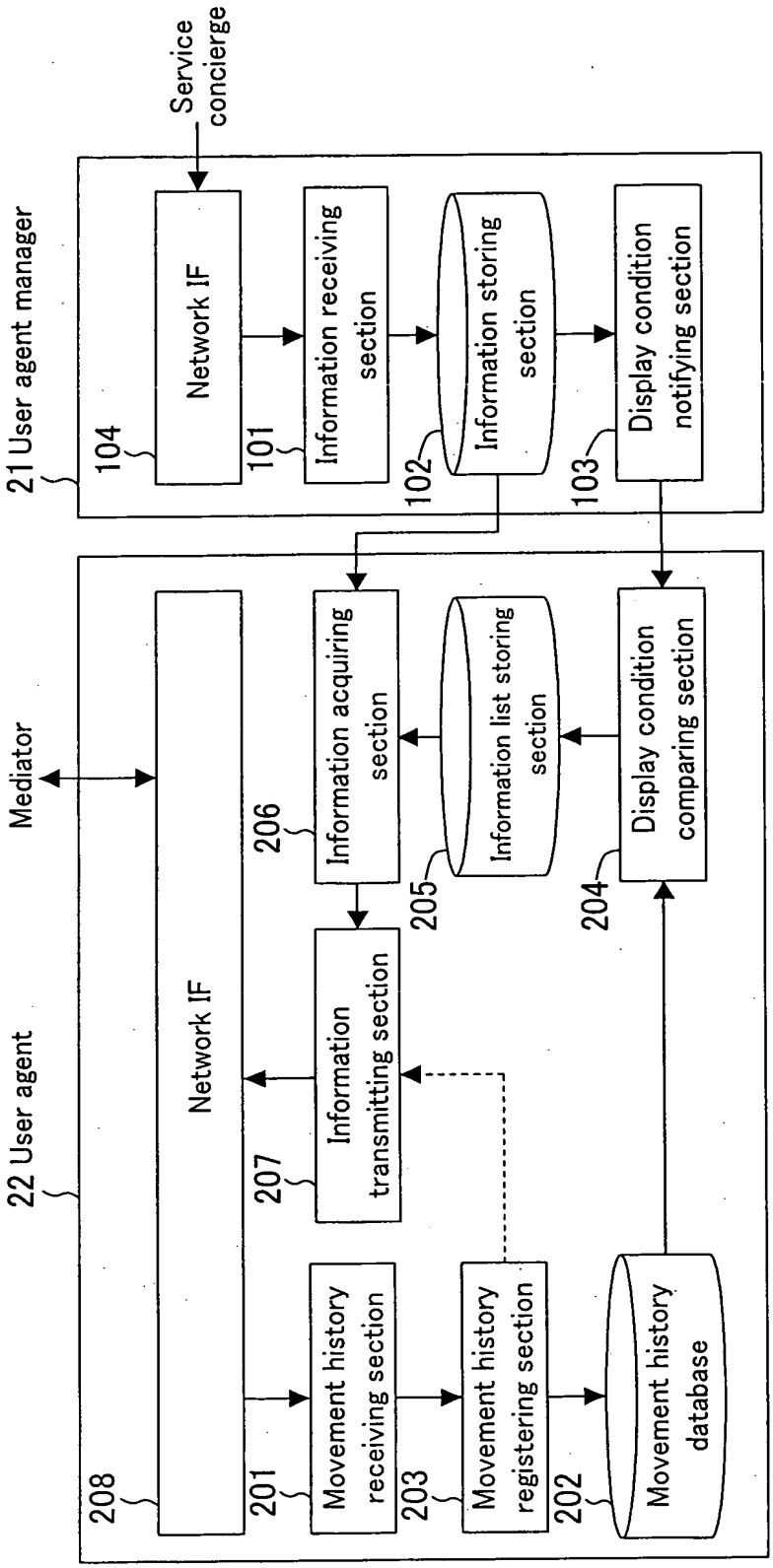

Service concierge
21 User agent manager
104
Network IF
101
Information receiving section
102
Information storing section
103
Display condition notifying section
Mediator
22 User agent
208
Network IF
206
Information acquiring section
205
Information list storing section
204
Display condition comparing section
207
Information transmitting section
201
Movement history receiving section
203
Movement history registering section
202
Movement history database

FIG.4

<condition>
<date>
<from>2002/08/01</from>
<to>2002/08/10</to>
</date>
<time>
<from>10:00</from>
<to>20:00</to>
</time>
<area>
<shape>square
<size>10m</size>
</shape>

E135:20:40.40/N34:44:10:30

</area>
</condition>
<content>
...
We are now having a sale, so be sure to stop by!
...
</content>

FIG.5

202

| Time | Device ID | Category | Position information (longitude/latitude) |
|---|---|---|---|
| ... | ... | ... | ... |
| 2002/08/01 10:00 | C3003P | Mobile phone | E135:20:35.33 / N34:44:35.20 |
| 2002/08/01 10:05 | C3003P | Mobile phone | E135:20:40.53 / N34:44:10.34 |
| 2002/08/01 10:10 | C3003P | Mobile phone | E135:21:02.20 / N34:44:50.11 |
| 2002/08/01 10:15 | HD9000 | Car navigation system | E135:24:12.00 / N34:46:32.12 |
| 2002/08/01 10:20 | HD9000 | Car navigation system | E135:28:33.03 / N34:48:11.13 |
| 2002/08/01 10:25 | HD9000 | Car navigation system | E135:32:32.10 / N34:50:39.21 |
| ... | ... | ... | ... |

FIG.6

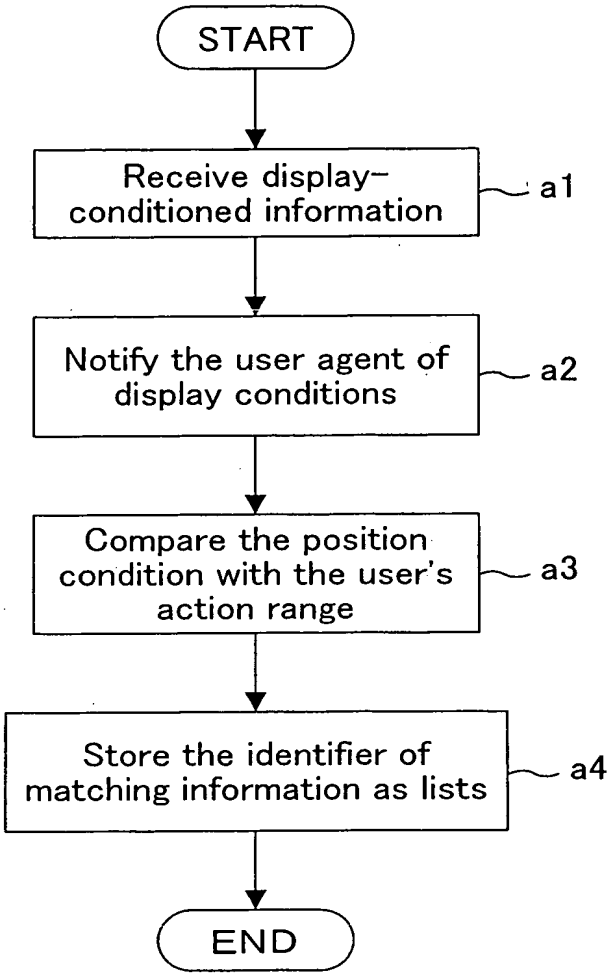

START
Receive display-conditioned information
a1
Notify the user agent of display conditions
a2
Compare the position condition with the user's action range
a3
Store the identifier of matching information as lists
a4
END

FIG.7

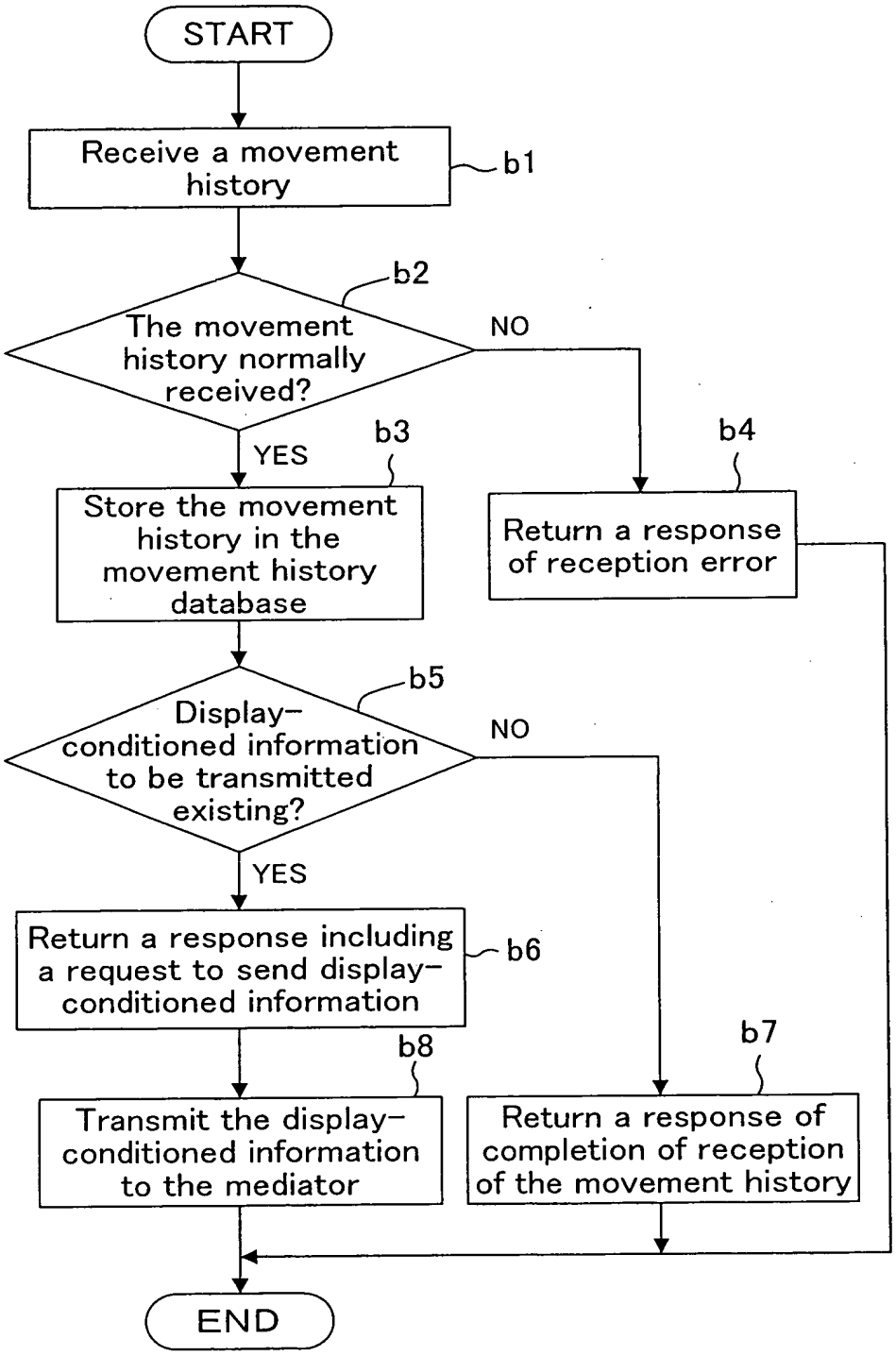
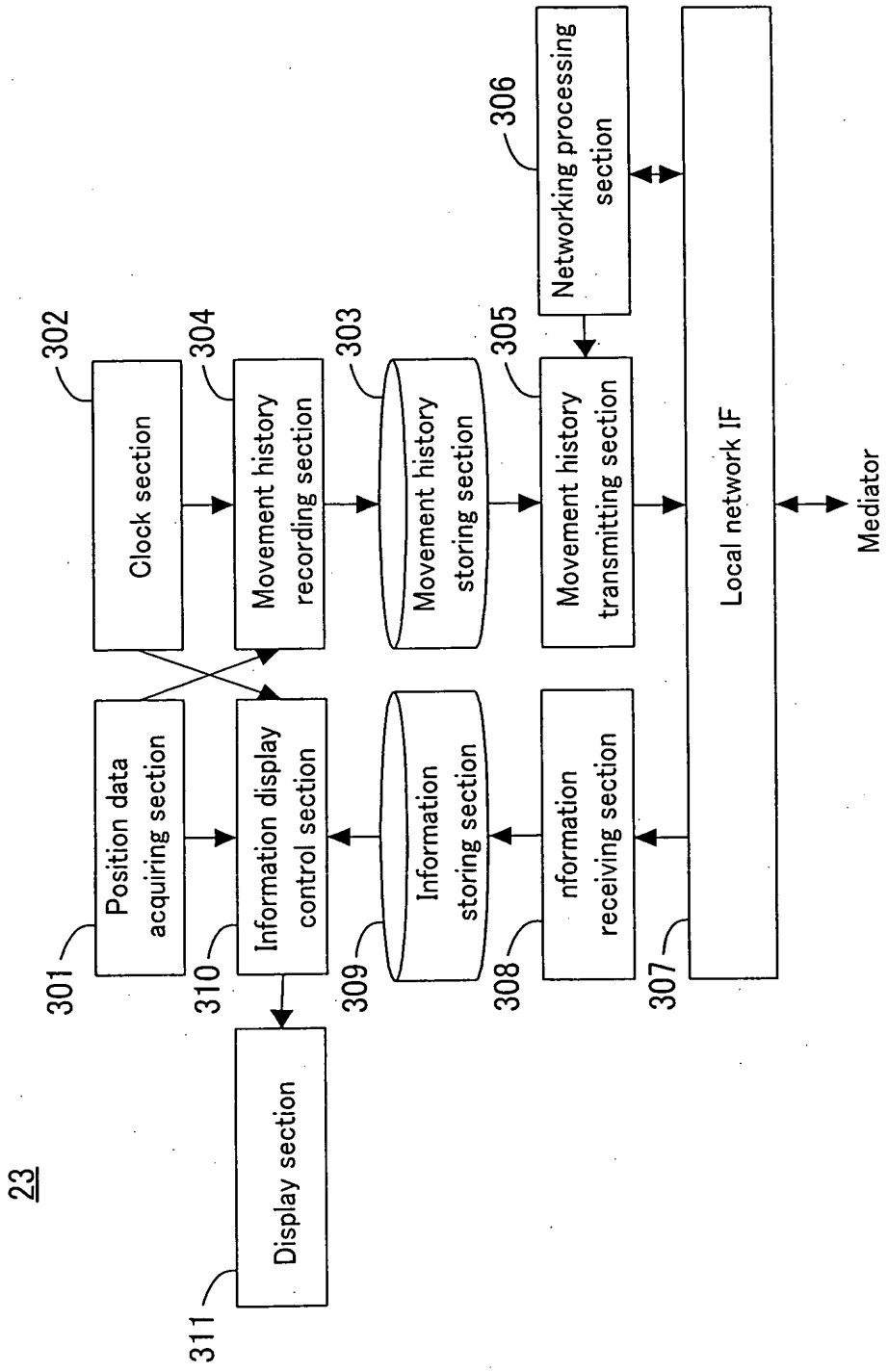

START
Receive a movement history
b1
b2
The movement history normally received?
NO
YES
b3
Store the movement history in the movement history database
b4
Return a response of reception error
b5
Display-conditioned information to be transmitted existing?
NO
YES
Return a response including a request to send display-conditioned information
b6
b7
b8
Transmit the display-conditioned information to the mediator
Return a response of completion of reception of the movement history
END

FIG.8


23
Clock section
302
Movement history recording section
304
Movement history storing section
303
Movement history transmitting section
305
Networking processing section
306
Local network IF
Mediator
Position data acquiring section
301
Information display control section
310
Information storing section
309
nformation receiving section
308
307
Display section
311

# FIG.9

303

| Time | Position data (longitude/latitude) |
|---|---|
| ... | ... |
| 2002/08/01 10:00 | E135:20:35.33 / N34:44:35.20 |
| 2002/08/01 10:05 | E135:20:40.53 / N34:44:10.34 |
| 2002/08/01 10:10 | E135:21:02.20 / N34:44:50.11 |
| ... | ... |

FIG.10

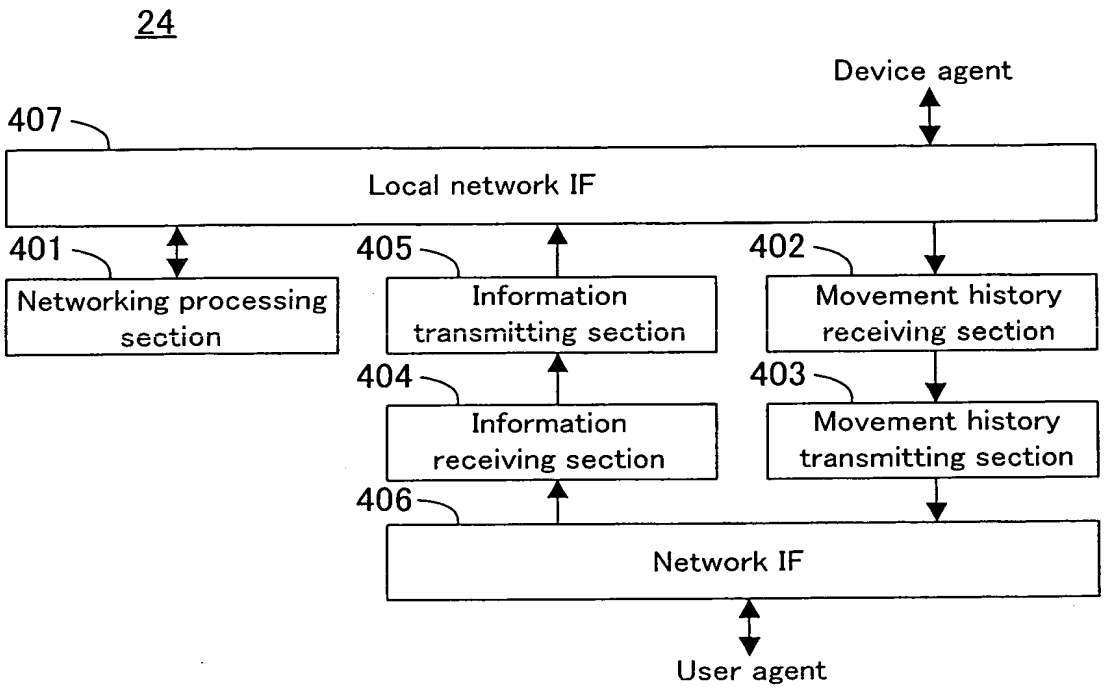

24
Device agent
407
Local network IF
401
Networking processing section
405
Information transmitting section
402
Movement history receiving section
404
Information receiving section
403
Movement history transmitting section
406
Network IF
User agent

FIG.11

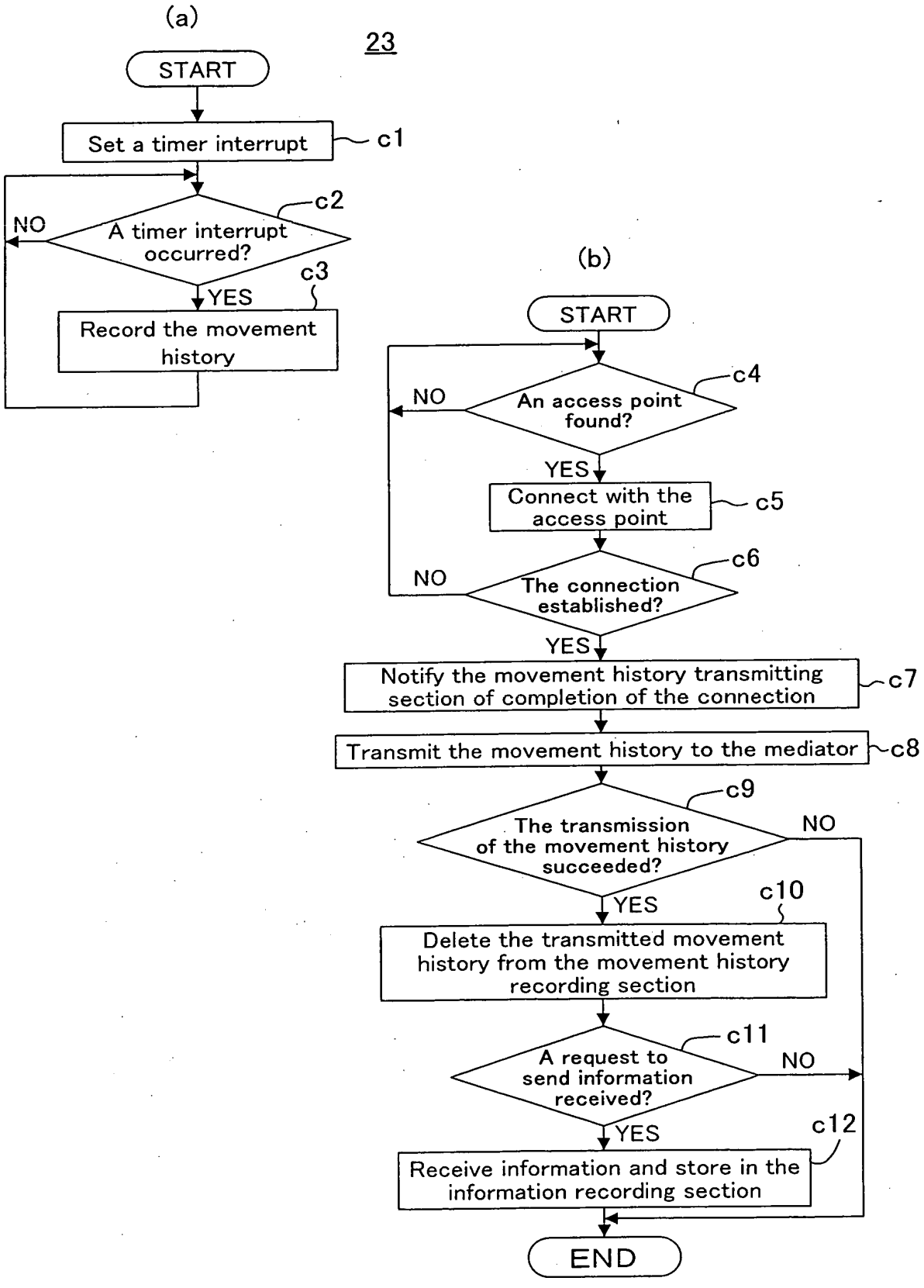

(a)
23
START
Set a timer interrupt
c1
A timer interrupt occurred?
c2
NO
YES
c3
Record the movement history
(b)
START
An access point found?
c4
NO
YES
Connect with the access point
c5
The connection established?
c6
NO
YES
Notify the movement history transmitting section of completion of the connection
c7
Transmit the movement history to the mediator
c8
The transmission of the movement history succeeded?
c9
NO
YES
Delete the transmitted movement history from the movement history recording section
c10
A request to send information received?
c11
NO
YES
Receive information and store in the information recording section
c12
END

FIG.12

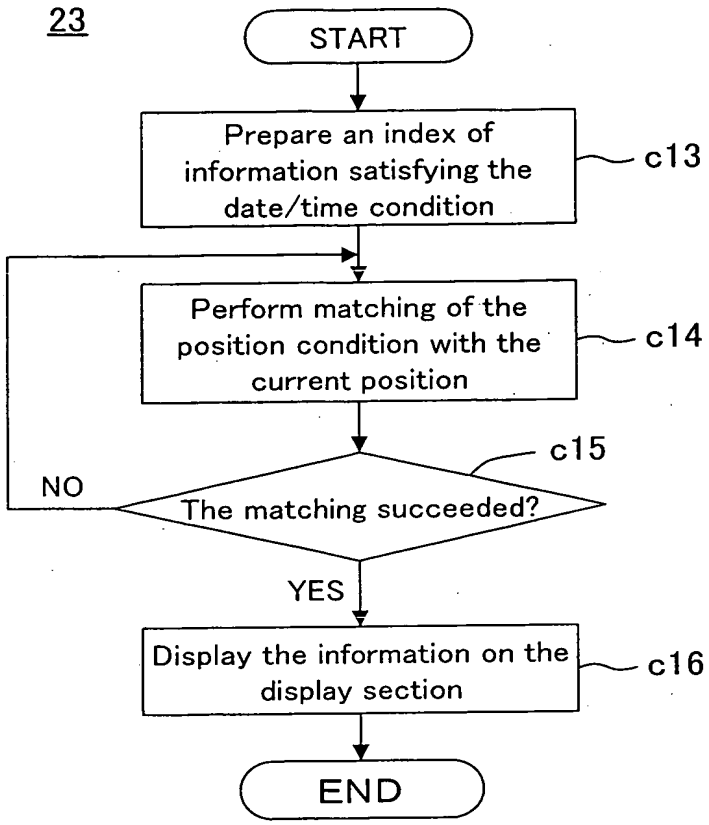

23
START
Prepare an index of information satisfying the date/time condition
c13
Perform matching of the position condition with the current position
c14
c15
NO
The matching succeeded?
YES
Display the information on the display section
c16
END

FIG.13

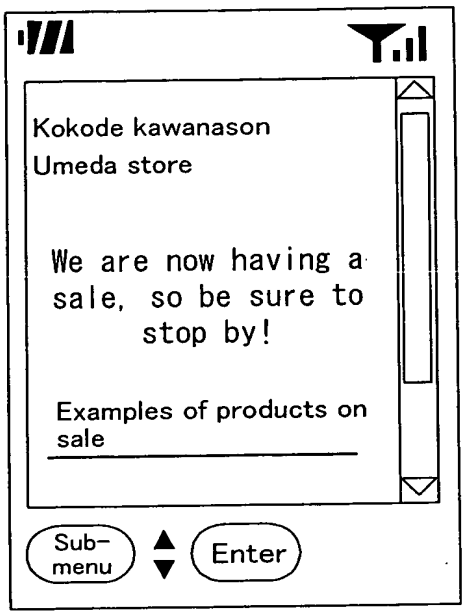

Kokode kawanason
Umeda store
We are now having a sale, so be sure to stop by!
Examples of products on sale
Sub-menu
Enter

FIG.14

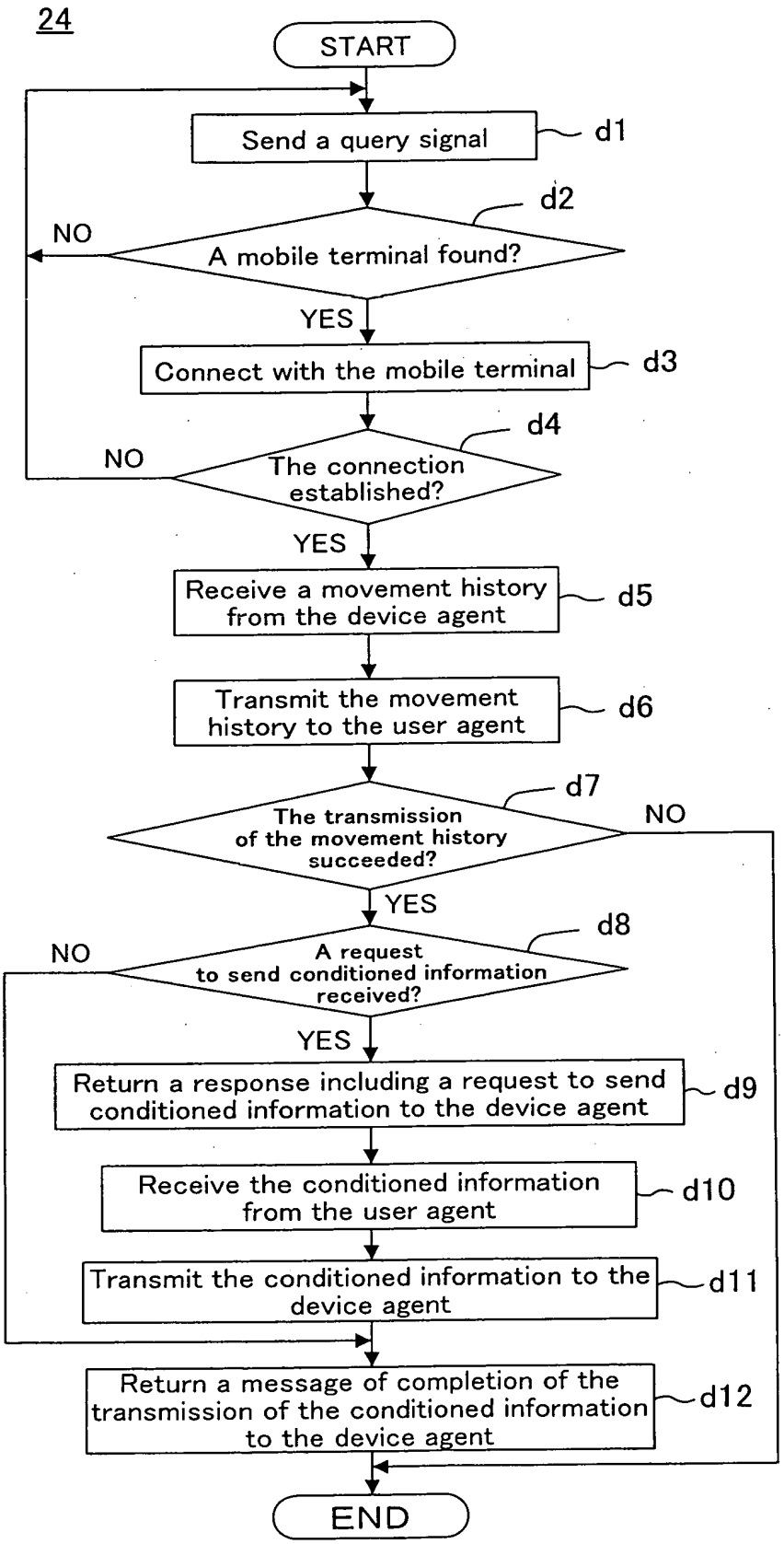

24
START
Send a query signal
d1
d2
A mobile terminal found?
NO
YES
Connect with the mobile terminal
d3
d4
The connection established?
NO
YES
Receive a movement history from the device agent
d5
Transmit the movement history to the user agent
d6
d7
The transmission of the movement history succeeded?
NO
YES
d8
A request to send conditioned information received?
NO
YES
Return a response including a request to send conditioned information to the device agent
d9
Receive the conditioned information from the user agent
d10
Transmit the conditioned information to the device agent
d11
Return a message of completion of the transmission of the conditioned information to the device agent
d12
END

FIG.15

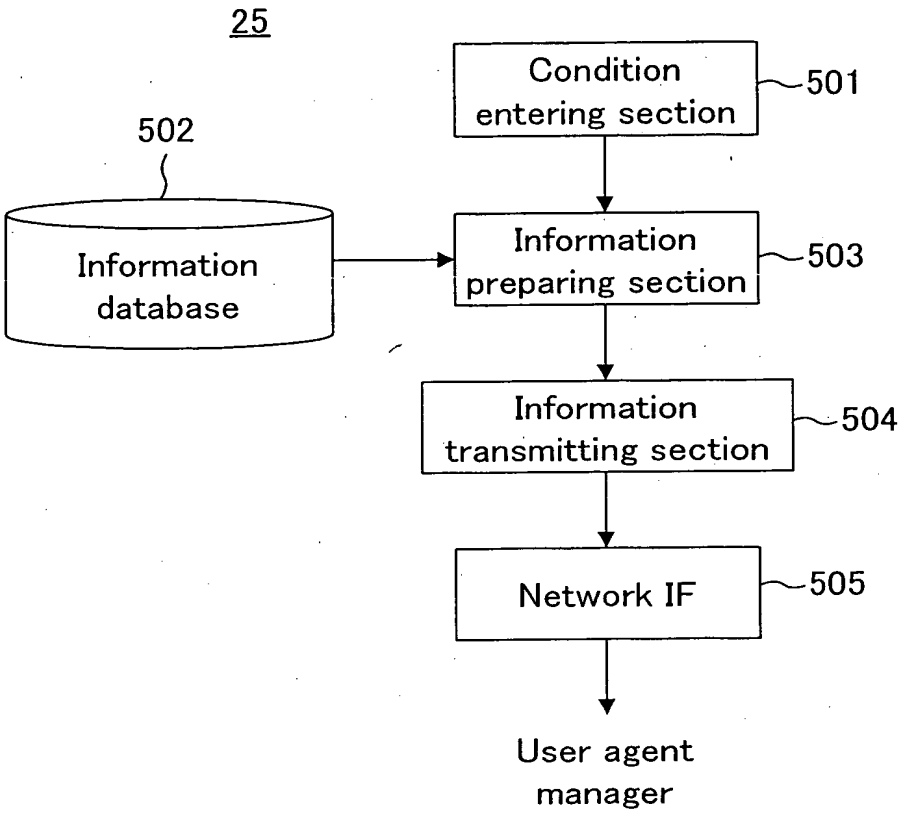
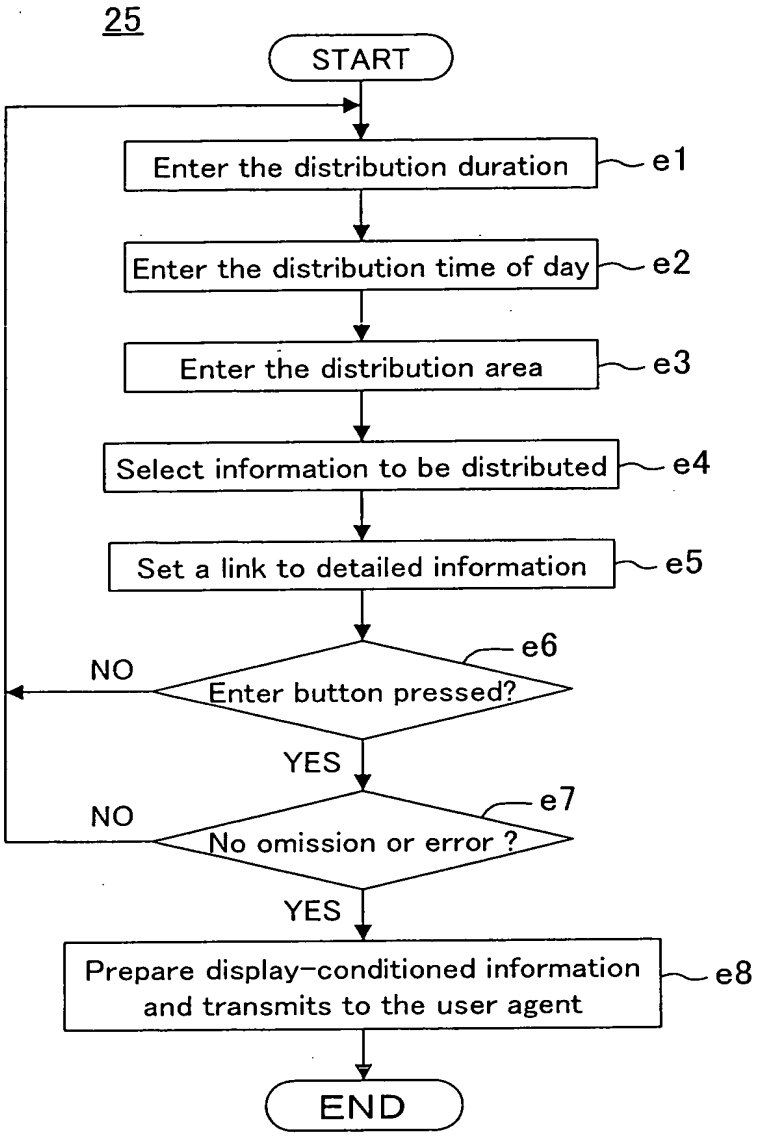

25
Condition entering section
501
502
Information database
Information preparing section
503
Information transmitting section
504
Network IF
505
User agent manager

FIG.16


25
START
Enter the distribution duration
e1
Enter the distribution time of day
e2
Enter the distribution area
e3
Select information to be distributed
e4
Set a link to detailed information
e5
e6
NO
Enter button pressed?
YES
e7
NO
No omission or error ?
YES
Prepare display-conditioned information and transmits to the user agent
e8
END

# FIG.17

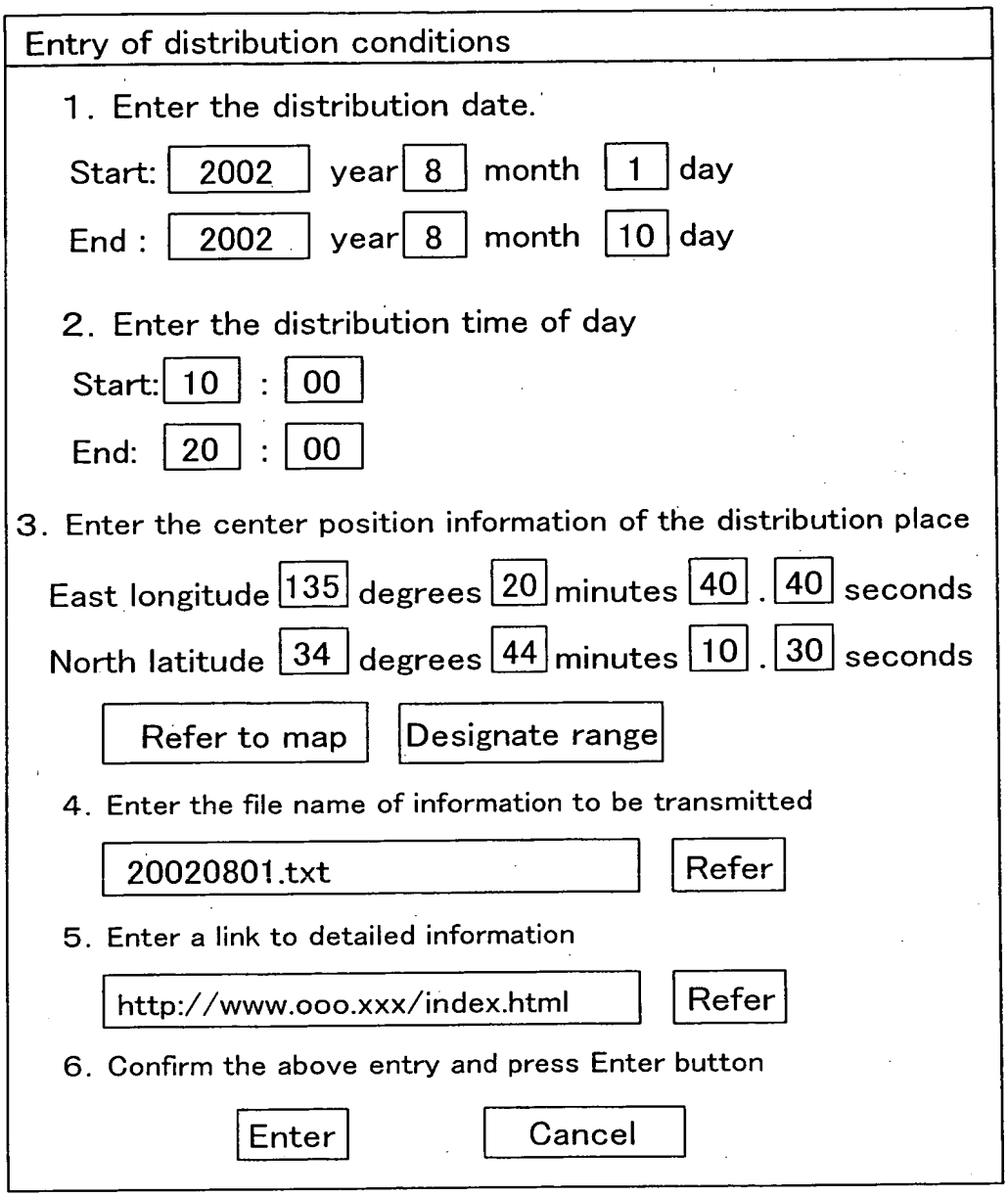

Entry of distribution conditions
1. Enter the distribution date.
Start: 2002 year 8 month 1 day
End : 2002 year 8 month 10 day
2. Enter the distribution time of day
Start: 10 : 00
End: 20 : 00
3. Enter the center position information of the distribution place
East longitude 135 degrees 20 minutes 40 . 40 seconds
North latitude 34 degrees 44 minutes 10 . 30 seconds
Refer to map
Designate range
4. Enter the file name of information to be transmitted
20020801.txt
Refer
5. Enter a link to detailed information
http://www.ooo.xxx/index.html
Refer
6. Confirm the above entry and press Enter button
Enter
Cancel

FIG.18

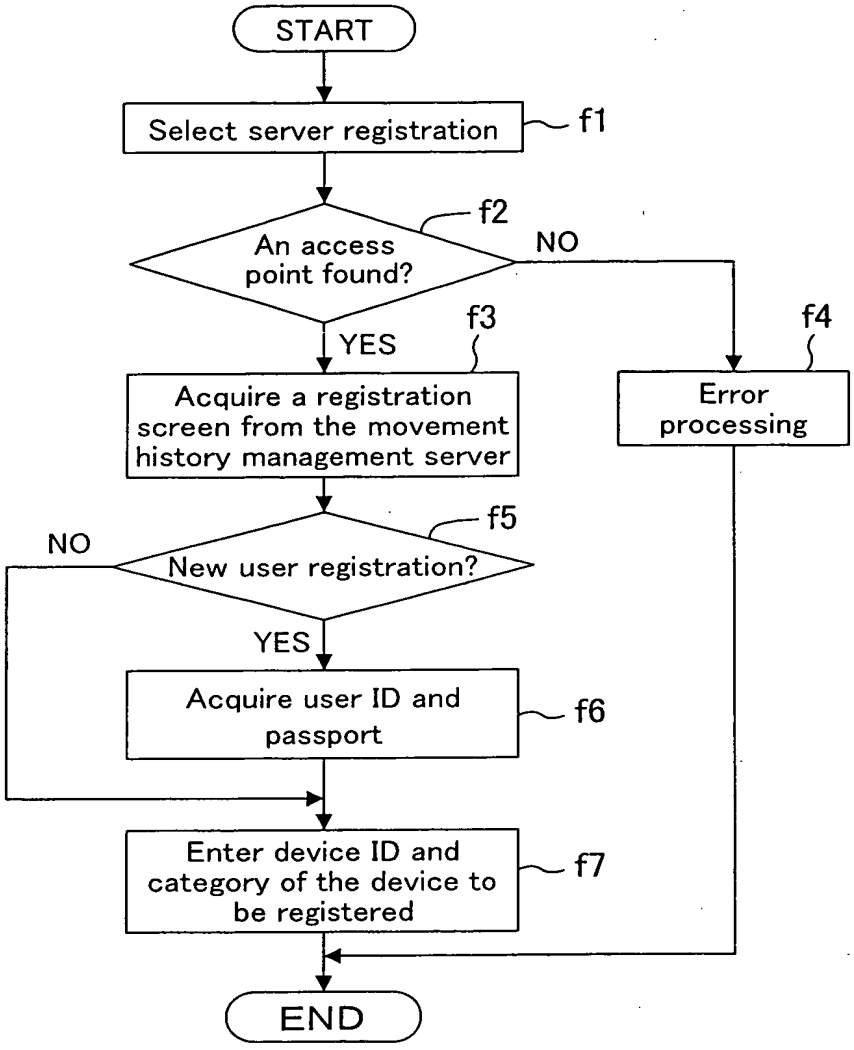
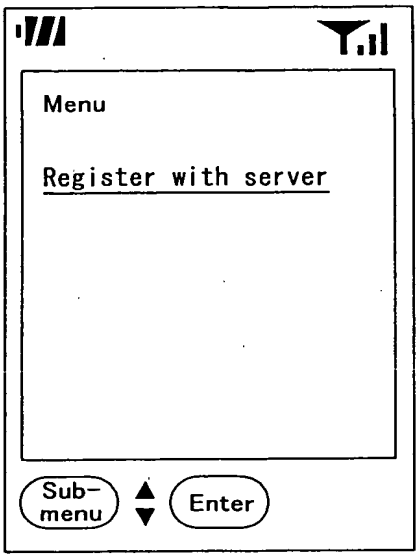
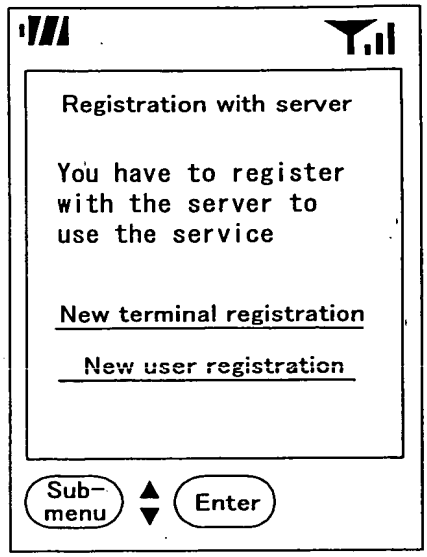

START
Select server registration
f1
An access point found?
f2
NO
YES
f3
f4
Acquire a registration screen from the movement history management server
Error processing
New user registration?
f5
NO
YES
Acquire user ID and passport
f6
Enter device ID and category of the device to be registered
f7
END

FIG.19

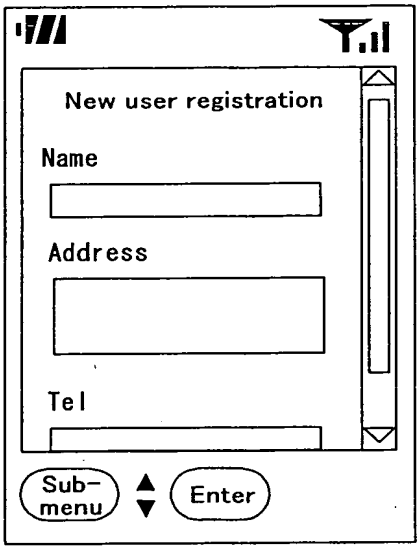
(a)


Menu
Register with server
Sub-menu
Enter

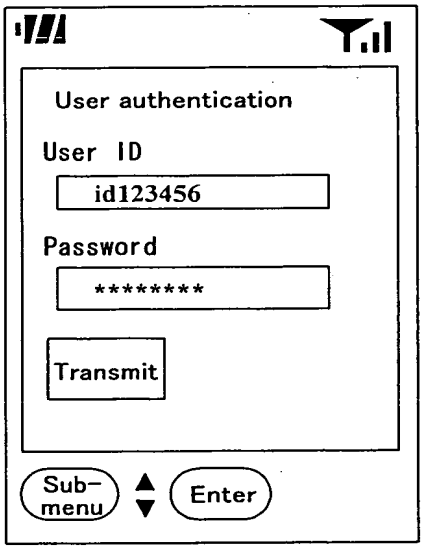
(b)


Registration with server
You have to register with the server to use the service
New terminal registration
New user registration
Sub-menu
Enter

(c)


New user registration
Name
Address
Tel
Sub-menu
Enter

(d)


User authentication
User ID
id123456
Password
********
Transmit
Sub-menu
Enter

(e)

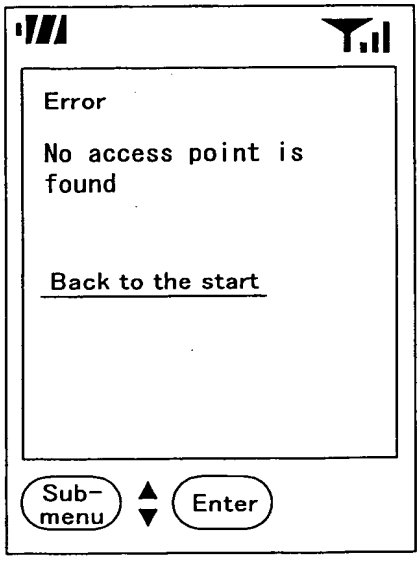

Error
No access point is found
Back to the start
Sub-menu
Enter

FIG.20

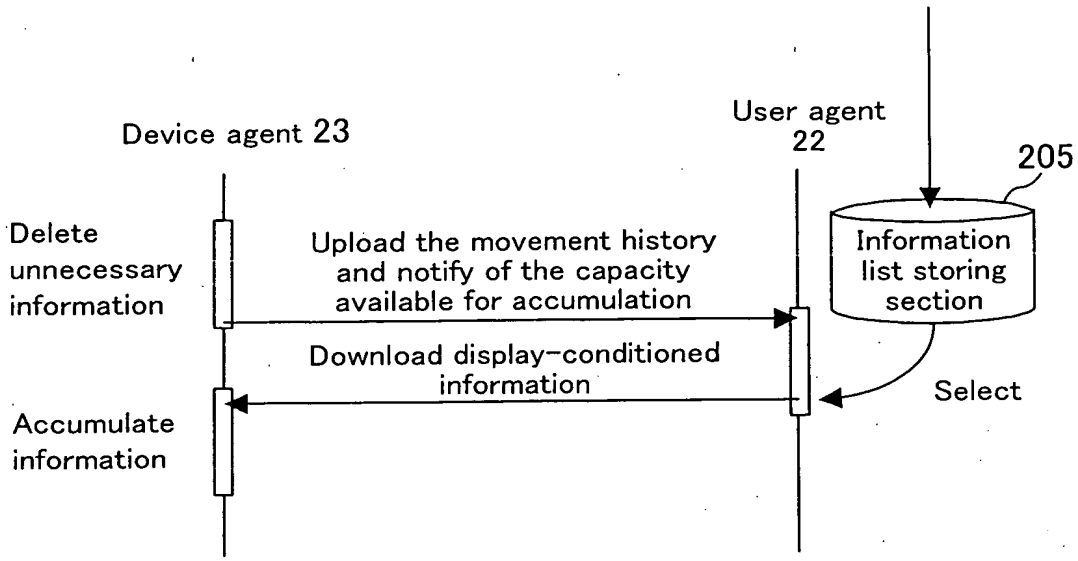

Device agent 23
User agent 22
205
Information list storing section
Delete unnecessary information
Upload the movement history and notify of the capacity available for accumulation
Download display-conditioned information
Select
Accumulate information

FIG.21

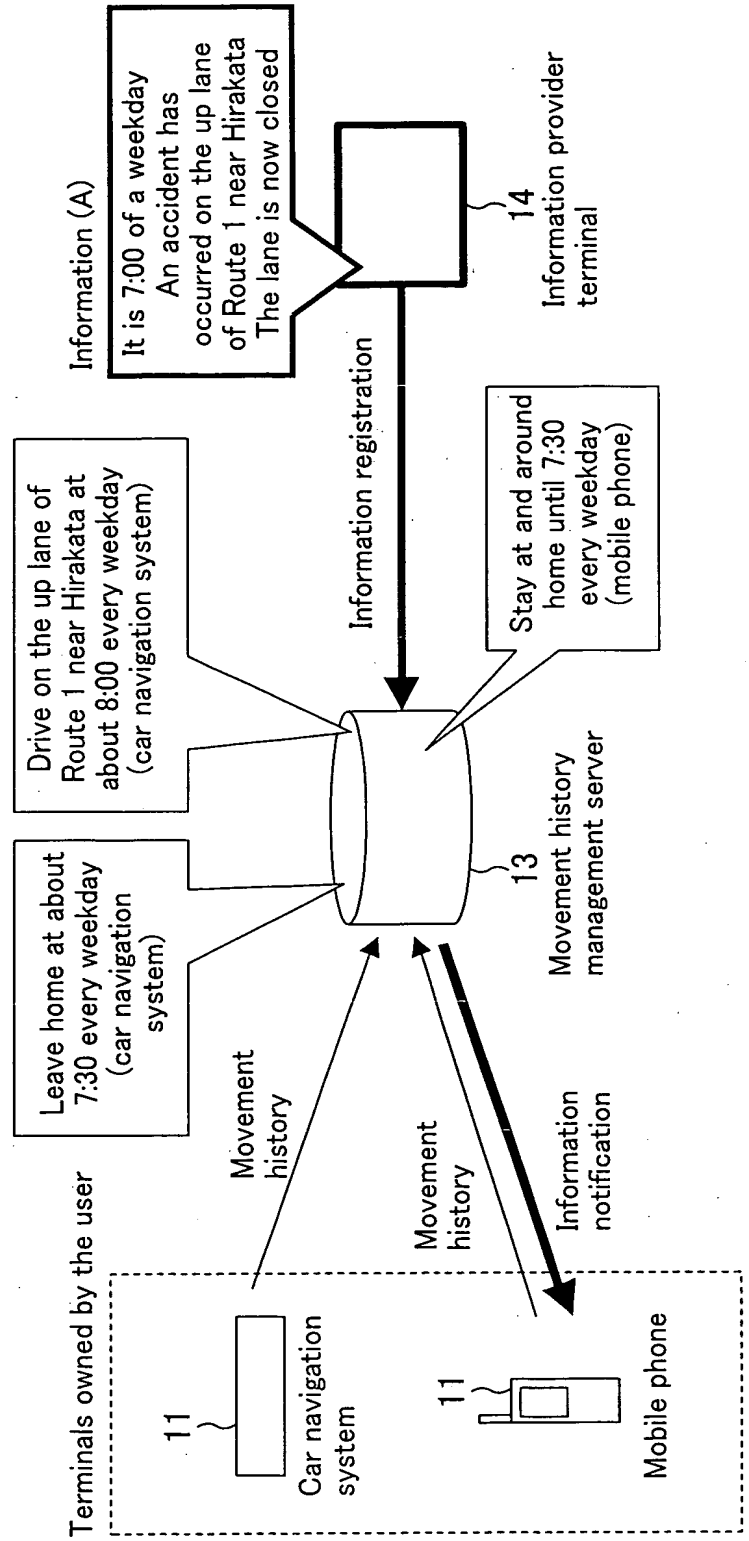

Information (A)
It is 7:00 of a weekday
An accident has occurred on the up lane of Route 1 near Hirakata
The lane is now closed
14
Information provider terminal
Information registration
Drive on the up lane of Route 1 near Hirakata at about 8:00 every weekday (car navigation system)
Stay at and around home until 7:30 every weekday (mobile phone)
Leave home at about 7:30 every weekday (car navigation system)
13
Movement history management server
Movement history
Movement history
Information notification
Terminals owned by the user
11
Car navigation system
11
Mobile phone

FIG.22

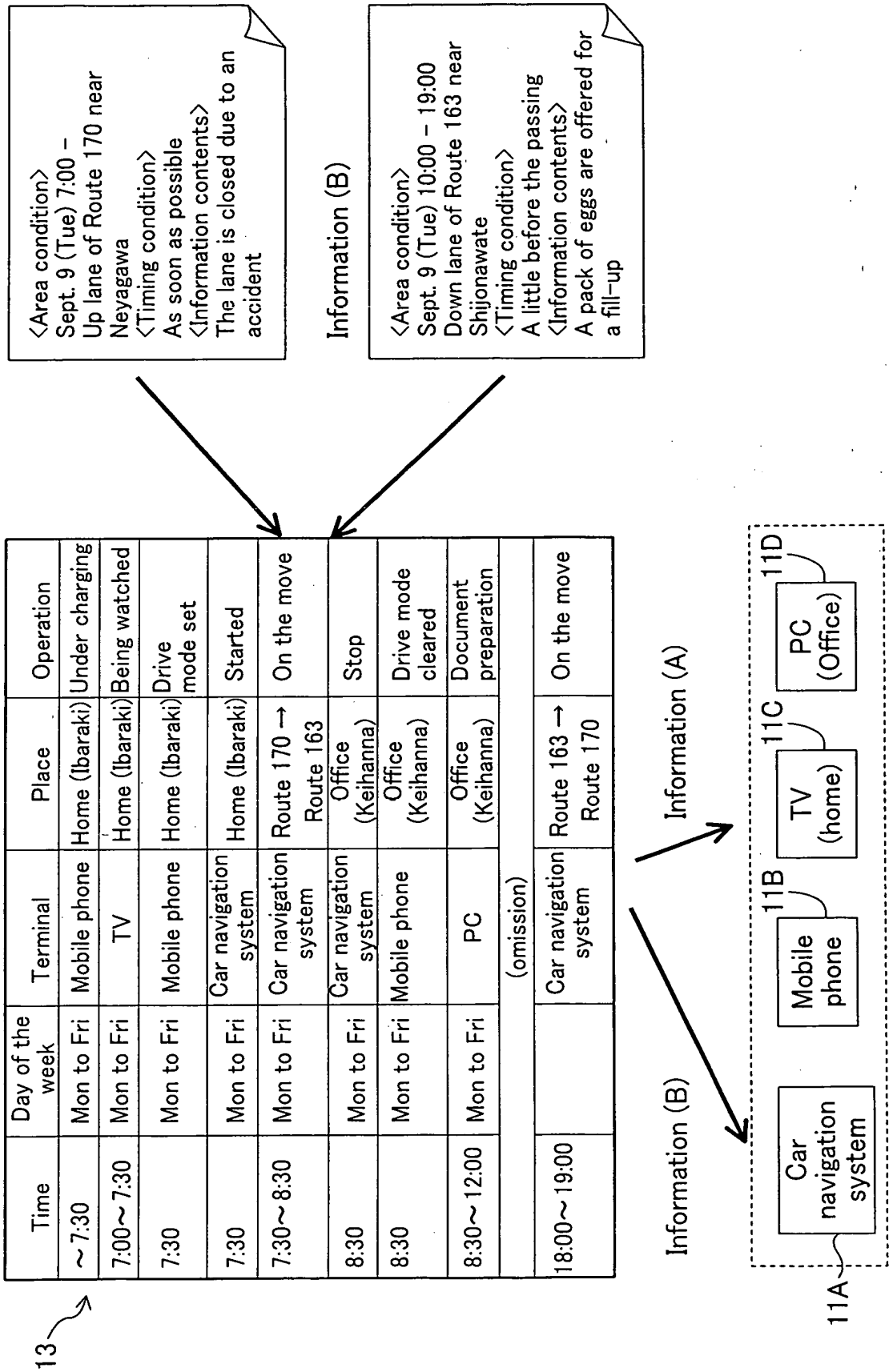

Information (A)
<Area condition>
Sept. 9 (Tue) 7:00 –
Up lane of Route 170 near
Neyagawa
<Timing condition>
As soon as possible
<Information contents>
The lane is closed due to an accident
Information (B)
<Area condition>
Sept. 9 (Tue) 10:00 – 19:00
Down lane of Route 163 near
Shijonawate
<Timing condition>
A little before the passing
<Information contents>
A pack of eggs are offered for a fill-up
13
Time
Day of the week
Terminal
Place
Operation
~7:30
Mon to Fri
Mobile phone
Home (Ibaraki)
Under charging
7:00~7:30
Mon to Fri
TV
Home (Ibaraki)
Being watched
7:30
Mon to Fri
Mobile phone
Home (Ibaraki)
Drive mode set
7:30
Mon to Fri
Car navigation system
Home (Ibaraki)
Started
7:30~8:30
Mon to Fri
Car navigation system
Route 170 → Route 163
On the move
8:30
Mon to Fri
Car navigation system
Office (Keihanna)
Stop
8:30
Mon to Fri
Mobile phone
Office (Keihanna)
Drive mode cleared
8:30~12:00
Mon to Fri
PC
Office (Keihanna)
Document preparation
(omission)
18:00~19:00
Car navigation system
Route 163 → Route 170
On the move
Information (A)
Information (B)
11A
Car navigation system
11B
Mobile phone
11C
TV (home)
11D
PC (Office)

FIG.23

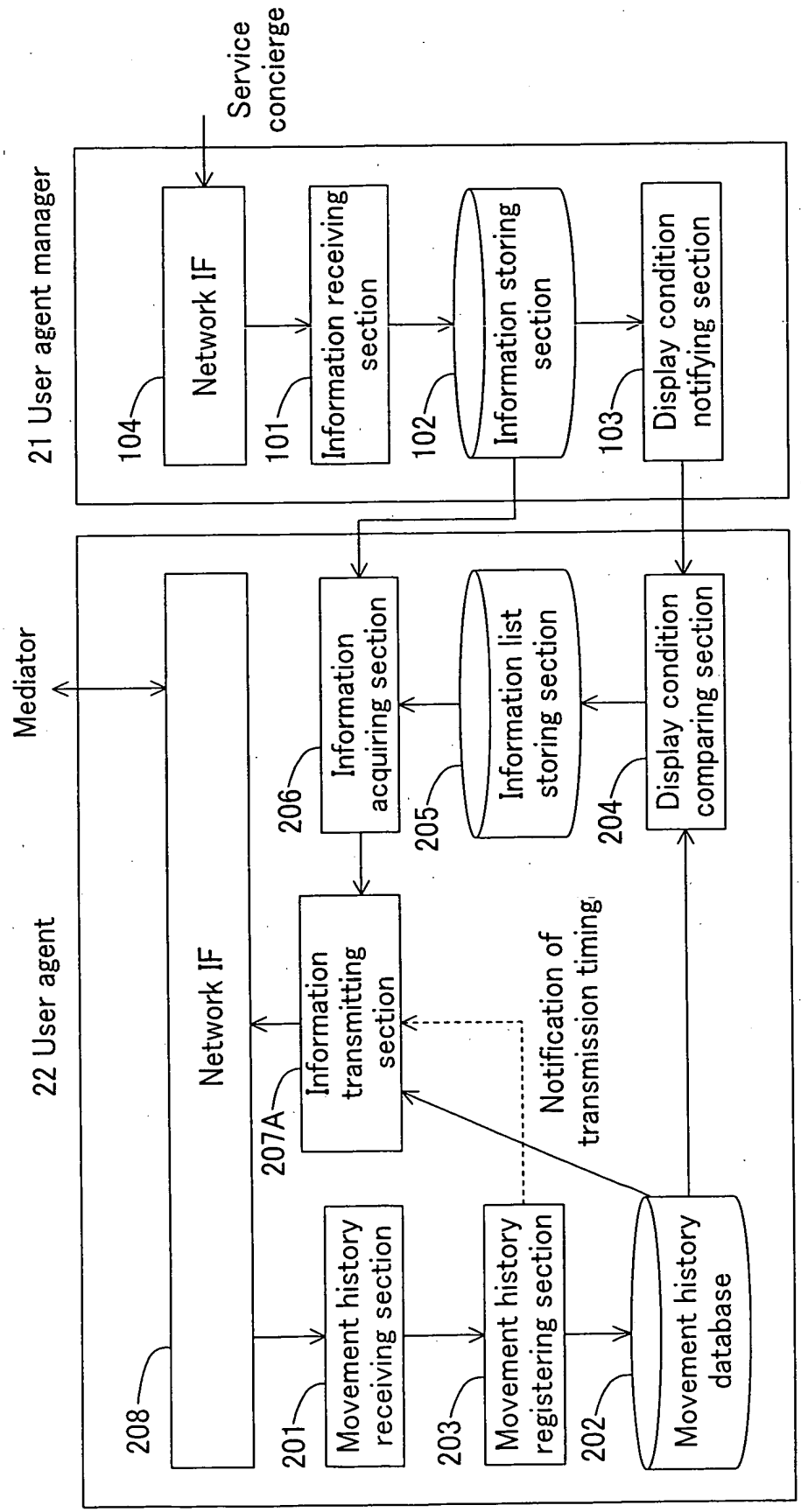

Service concierge
21 User agent manager
104
Network IF
101
Information receiving section
102
Information storing section
103
Display condition notifying section
Mediator
22 User agent
Network IF
206
Information acquiring section
205
Information list storing section
204
Display condition comparing section
207A
Information transmitting section
Notification of transmission timing
208
201
Movement history receiving section
203
Movement history registering section
202
Movement history database

FIG.24

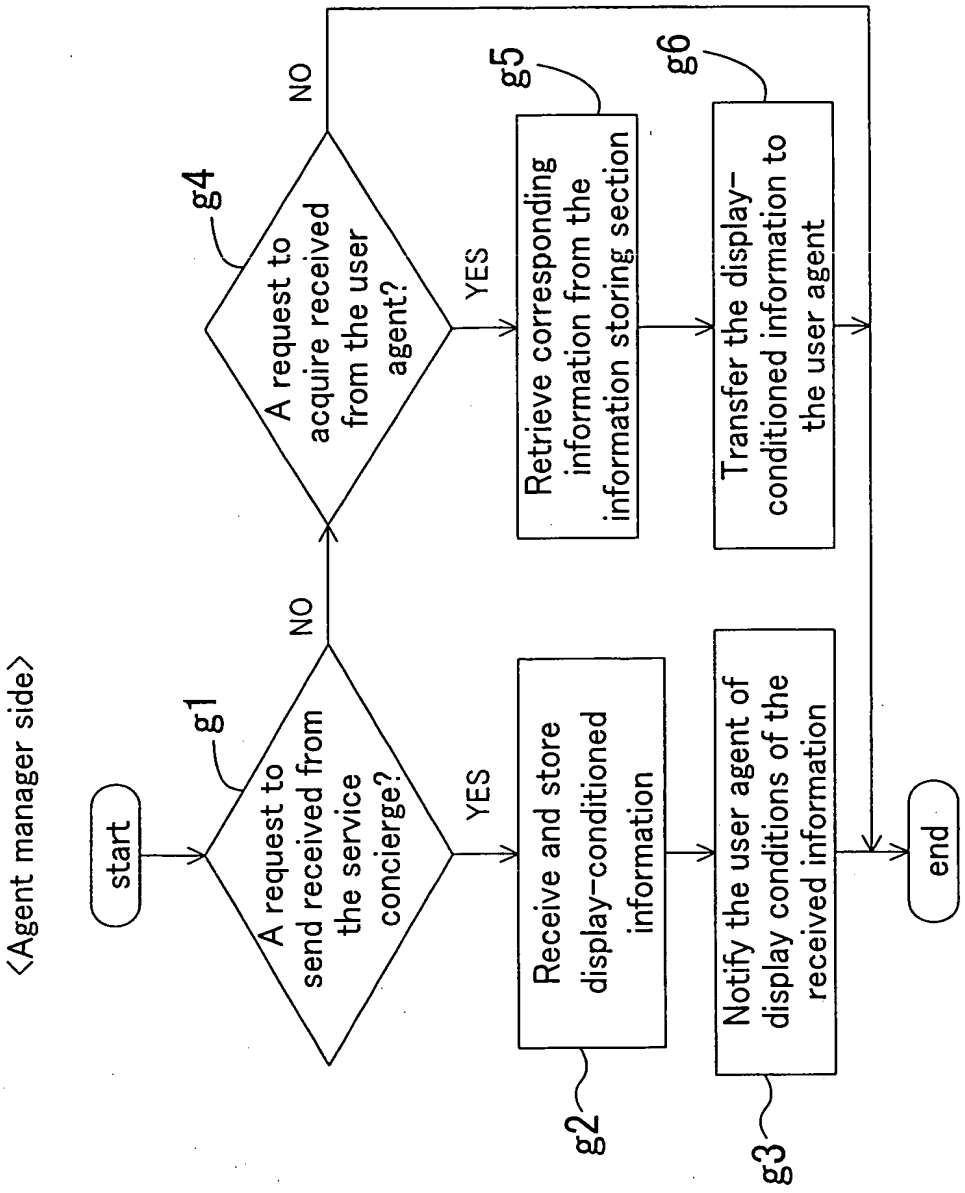

<Agent manager side>
start
g1
A request to send received from the service concierge?
YES
NO
g2
Receive and store display-conditioned information
g3
Notify the user agent of display conditions of the received information
g4
A request to acquire received from the user agent?
YES
NO
g5
Retrieve corresponding information from the information storing section
g6
Transfer the display-conditioned information to the user agent
end

FIG.25

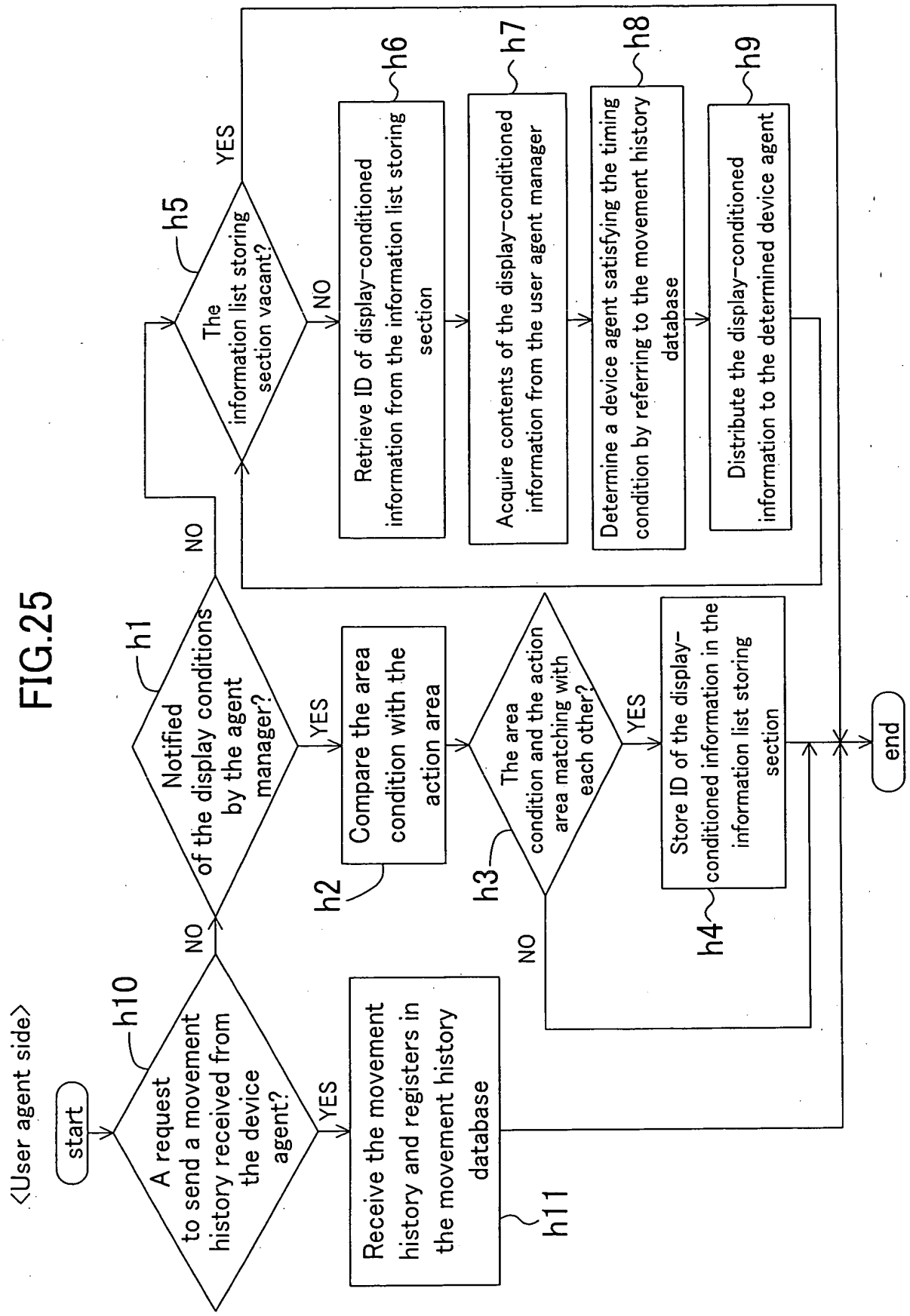

<User agent side>
start
h10
A request to send a movement history received from the device agent?
NO
YES
h11
Receive the movement history and registers in the movement history database
h1
Notified of the display conditions by the agent manager?
NO
YES
h2
Compare the area condition with the action area
h3
The area condition and the action area matching with each other?
NO
YES
h4
Store ID of the display-conditioned information in the information list storing section
h5
The information list storing section vacant?
YES
NO
h6
Retrieve ID of display-conditioned information from the information list storing section
h7
Acquire contents of the display-conditioned information from the user agent manager
h8
Determine a device agent satisfying the timing condition by referring to the movement history database
h9
Distribute the display-conditioned information to the determined device agent
end

FIG.26

| Timing condition | Display terminal having higher priority |
|---|---|
| Condition A: as soon as possible | Terminal currently being used or standing by for use |
| Condition B: deliberately | Terminal that is used for a longer time (in the designated area) |
| Condition C: near the designated place | Terminal high in use frequency (in the designated area) |
| Condition D: at the designated time | Terminal high in use frequency at the designated time (in the designated area) |

# FIG.27

(a)

| |
|---|
| Information 1 (area A, condition A) |
| Information 2 (area A, condition B) |
| Information 3 (area A, condition C) |
| Information 4 (area B, condition A) |
| Information 5 (area B, condition B) |
| Information 6 (area B, condition C) |
| Information 7 (no designation, condition A) |
| Information 8 (no designation, condition B) |

(b)

<User 1> Action area: area A (car navigation system, mobile phone), area B (TV, mobile phone)
Currently using the car navigation system

Information 1, Information 2, Information 3, Information 4, Information 7, Information 8 → Car navigation system

Information 5 → TV

Information 6 → Mobile phone

(c)

<User 2> Action area: area A (TV, mobile phone), area D (mobile phone)
Currently using the TV

Information 1, Information 2, Information 7, Information 8 → TV

Information 3 → Mobile phone

(d)

<User 3> Action area: area A (mobile phone), area E (mobile phone, TV)
Currently using the mobile phone

Information 1, Information 2, Information 3, Information 7, Information 8 → Mobile phone



Title: INFORMATION DISTRIBUTION DEVICE AND INFORMATION DISTRIBUTION METHOD
Inventor(s): Satoshi MATSUURA, et al
Atty. Ref.: 5077-228/NP
10/523042